

**REMARKS/ARGUMENTS**

Reexamination of the captioned application is respectfully requested.

**A. SUMMARY OF THIS AMENDMENT**

By the current Amendment, Applicants basically amend claims 22-33, 35-38, 40-41 and 46. Claims 22-46 are pending. Claims 22, 40, 41 and 46 are independent.

**B. §112 2<sup>ND</sup> PARAGRAPH REJECTION**

Claims 40-43 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants respectfully traverse.

Regarding independent claim 40, the Examiner alleges that the written description fails to disclose the corresponding structure, material, or acts of the claimed invention. Applicants respectfully direct the Examiner's attention to Fig. 11 which illustrates a Node B 25 and a RNC 22 of a shared resource system. The shared resource management problem can map to the problem of managing the baseband resourced in the Node B 25. To manage the shared resources, the hardware resource management 44 and shared resource management 46, which perform the functions described throughout the specification, can be utilized. *Original specification, p. 22, l.25 – p.24, l.20.* Thus, the corresponding structure, material, or acts of claim 40 are disclosed. Similarly, the corresponding structure, material, or acts of claims 41-43 are also disclosed.

Applicants respectfully request that the §112, second paragraph rejections of claims 40-43 be withdrawn.

**C. §103 REJECTION – CECILE, JOHANSSON**

Claims 22-36, 39, 44 and 46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 1220557 to Cecile in view of U.S. Publication 2004/0219912 to Johansson et al, hereinafter Johansson. Applicants respectfully traverse.

When administering shared resources, somewhat contradictory objectives – efficiency and fairness – are considered. Fairness can be achieved by strictly dividing the available resources such that each operator gets its own resources and cannot utilize any other resources. However, efficiency would not be maximized in a global sense. On the other hand, if the resources are managed together without any concern about which operator uses which resource, one may end up in a congestion situation where one operator is denied resources despite the fact that the operator has not yet fully utilized its allocated portion.

*Original disclosure, p.6, ll.5-20.*

In an aspect of the subject matter disclosed in the specification, control is provided over how the available resources are used by different operators, particularly at or close to congestion situations. Generally, to maximize the overall efficiency, all connections are accepted during non-congested situations, which means that an operator can exceed the agreed proportion when the resources are abundant. However, at or close to congestion, new connections are

accepted if the operator's agreed proportion is not exceeded. *Original disclosure, p.6, ll.22-30.*

Fig. 2 of the disclosure schematically illustrates shared resources as a rectangle in which the area of the rectangle corresponds to the total resources "C" shared by three operators who are allocated portions  $C_{p1}$ ,  $C_{p2}$  and  $C_{p3}$  in this example. Also,  $\beta$  represents a congestion threshold. *Original disclosure, p.7, ll.8-30.*

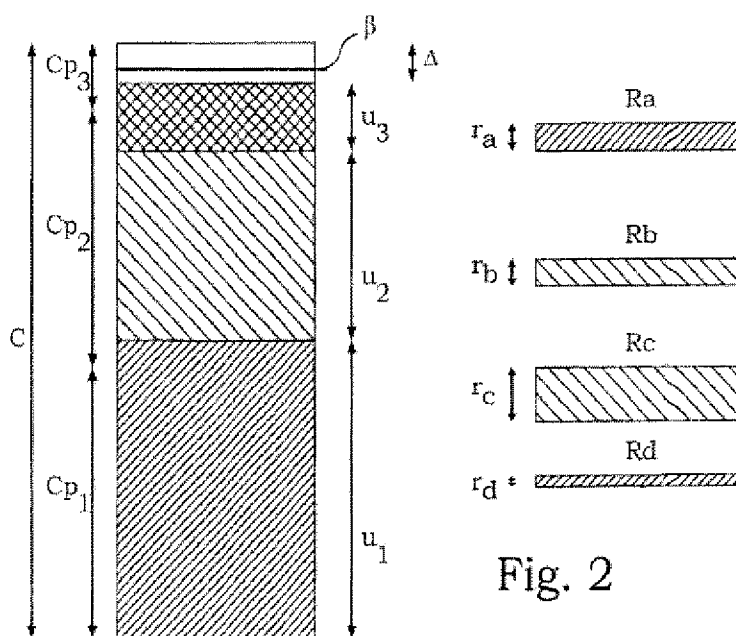


Fig. 2

Fig. 3 of the disclosure illustrates a flow diagram of an inventive method for managing resources in a communication system having resources shared by at least two operators. Upon reception of an access request for a first operator (step 202), the system executes a first determination whether there are sufficient amount of free resources available in the communication system (step 204). The free resources correspond to the unused portion of the shared resources denoted  $\Delta$  in Fig. 2. *Original disclosure, p.9, ll.2-11.*

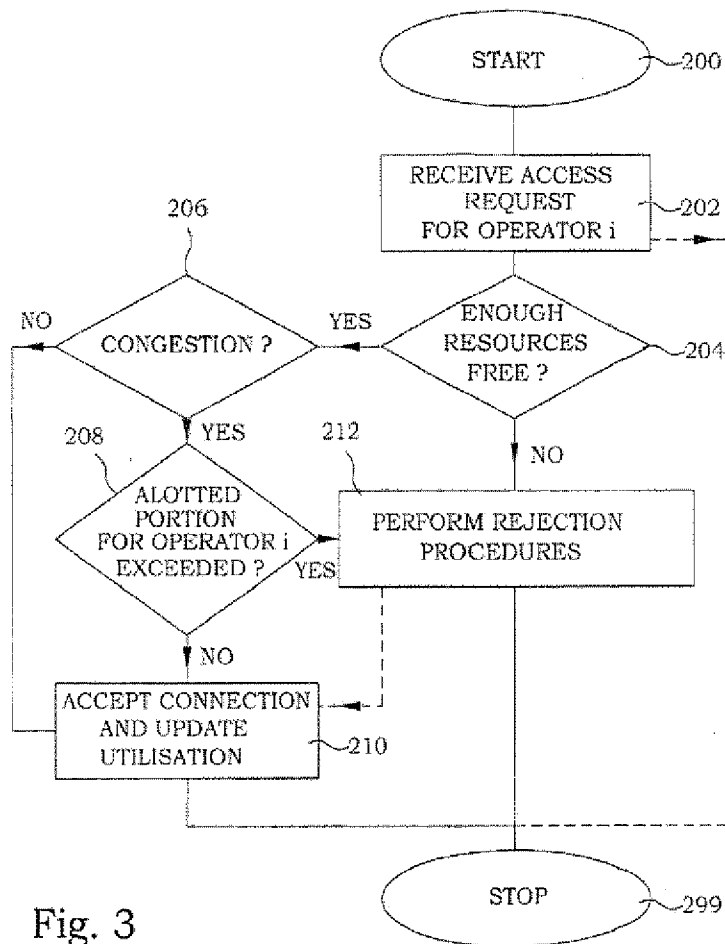


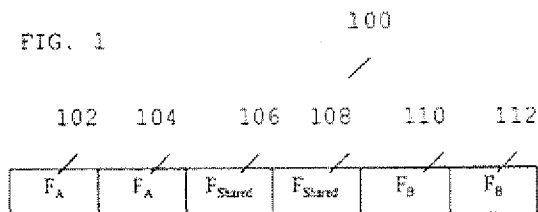
Fig. 3

The system then determines whether or not the system will be congested (step 206). To make such determination in one aspect, the system executes a second determination whether a total amount of the resources shared by the at least two operators in use in the communication system exceeds a first threshold (step 206). The system also determines whether the first operator has fully used its allocated portion of the shared resources (step 208). To make this determination, in one aspect, the system executes a third determination whether a total amount of said resources shared by at least two operators in use for the first operator exceeds a second threshold. The system can decide A decision on

accepting the access request is based on the results of the first, second and third determinations. *Original disclosure, p.9, l.13 – p.10, l.18.* These features are reflected in the features recited in claim 22.

The combination of Cecile and Johansson does not teach or suggest all claimed features. In the Office Action, the Examiner relies upon [0072] and Fig. 8, step 814 of Cecile to allegedly teach executing the first determination. *Office Action, p.6.* On the contrary, Cecile does not teach or suggest this feature.

Cecile is directed to a method for dynamic inter-Operator resource sharing. In Fig. 1, Cecile illustrates a block diagram 100 of a spectrum allocation arrangement with frequency sharing of frequencies 102-112. Operator A has “proprietary frequencies”  $F_A$  102, 104 and Operator B has its own proprietary frequencies  $F_B$  110, 112. Two frequencies  $F_{Shared}$  106, 108 are shared frequencies. *Cecile, [0032 – 0034].*



Cecile notes that only the respective network is able to use their own proprietary frequencies. *Cecile, [0034].* In other words, only the  $F_{Shared}$  frequencies 106, 108 are resources that are shared between the two operators.

In Fig. 8, Cecile illustrates a flow chart 800 of a Call Admission process. *Cecile, [0071].* It is important to note the following. Box 810 that surrounds steps 812-822 represents an Operator's proprietary and shared spectrum

allocated domain. Cecile notes “Shared spectrum is accessed only when the proprietary spectrum is saturated.”

When a hand-over call arrives to the Operator’s domain (*step 812*), the local controller of the operator, e.g. RAN of the operator, makes a determination “as to whether the call can be accepted by the proprietary system as in step 814.” *Emphasis added; Cecile [0072]*. If it is determined that the call cannot be accepted by the proprietary system (*step 822*), the operator’s local controller determines the overflow situation and makes an access request for the shared spectrum to a common controller (*step 824*). *Cecile [0073-0074]*. If sufficient shared spectrum exists, then the common controller grants access increase (*steps 842-846*).

In the Office Action, the Examiner alleges that step 814 of Cecile is equivalent to the claim first determination feature. However, as noted above, the operator determines whether or not the call can be accepted by the proprietary system. For example, Operator A in this step determines whether or not sufficient FA proprietary frequencies 102, 104 are free. These are not shared frequencies.

In a clear contrast, claim 22 recites “executing a first determination whether there are sufficient amount of free resources shared by the at least two operators available in the communication system.” Clearly, any steps of the domain 810 including step 814 cannot be equivalent to this claimed feature.

As noted above, Cecile does indicate that in step 842, the common controller determines whether enough bandwidth is available. *Cecile [0074]*.

But Cecile lacks the claimed features of “executing a second determination whether a total amount of said resources shared by at the least two operators in use in the communication system exceeds a first threshold”, “executing a third determination whether a total amount of said resources shared by at the least two operators in use for the first operator exceeds a second threshold” and “deciding on accepting the access request based on the results of the first, second and third determinations.”

The office action attempts to rehabilitate Cecile by combining Cecile with Johansson. The Examiner only relies upon Johansson to allege that Johansson teaches the claimed third determination. That is, it is implicitly admitted that Johansson fails to teach or suggest the claimed first and second determination features. Since Cecile also lacks teachings in these features, the combination of Cecile and Johansson does not teach either the first or the second determination. The lack of teachings of each of these features is sufficient on its own to distinguish claim 22 from the combination of Cecile and Johansson.

The Examiner admits that Cecile does not teach or suggest the claimed third determination feature. It has been demonstrated in the Amendment submitted on August 26, 2010 that Johansson also lacks this teachings. This is yet another independently sufficient distinction between claim 22 and the combination of Cecile and Johansson.

It is noted that Johansson, like Cecile, differentiates between resources dedicated to each operator and resources that are shared between operators.

*Johansson [0026]*. As seen in Fig. 2, the system includes a dedicated GERAN dedicated for operator 1, a dedicated UTRAN for operator 2, and a shared UTRAN shared by operators 1 and 2. Thus, it is no surprise that Johansson suffers deficiencies similar to Cecile.

For at least the reasons stated above, independent claim 22 is distinguishable over Cecile and Johansson. For similar reasons, independent claim 46 is also distinguishable over Cecile and Johansson. By virtue of their dependencies from claim 22 as well as on their own merits, claims 23-36, 39 and 44 are distinguishable over Cecile and Johansson.

Applicants respectfully request that the rejections of claims 22-36, 39, 44 and 46 based on Cecile and Johansson be withdrawn.

**D. §103 REJECTION – CECILE, PELTOLA**

Claims 40-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cecile in view of U.S. Patent No. 7,218,937 to Peltola et al, *hereinafter Peltola*. Applicants respectfully traverse.

Independent claim 40 recites, in part “means for executing a first determination whether there are sufficient amount of free resources shared by the at least two operators available in the communication system.” It is demonstrated above that Cecile does not teach or suggest this feature. It is also demonstrated above that Cecile does not teach or suggest the features of “means for executing a second determination whether a total amount of said resources shared by the at least two operators in use in the communication



system exceeds a first threshold.” Peltola is not relied upon to correct for these deficiencies of Cecile.

For at least these reasons, claim 40 is distinguishable over Cecile and Peltola. For similar reasons, independent claim 41 is also distinguishable over Cecile and Peltola. By virtue of their dependencies from claim 41 as well as on their own merits, claims 42 and 43 are distinguishable over Cecile and Peltola.

Applicants respectfully request that the rejections of claims 40-43 based on Cecile and Peltola be withdrawn.

**E. §103 REJECTION – CECILE, JOHANSSON, PELTOLA**

Claim 45 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cecile in view of Johansson and Peltola. Applicants respectfully traverse.

Claim 45 depends from claim 22 and Johansson and Peltola, individually or in combination, do not correct the deficiencies of Cecile. Thus, claim 22 is also distinguishable over Cecile, Johansson and Peltola. By virtue of it dependency from claim 22, claim 45 is also distinguishable over Cecile, Johansson and Peltola.

Claim 45 is distinguishable on its own merits as well. The Examiner points to c.3, 1.20 – c.4, 1.52 and Figs. 1, 5 and 6 of Cecile to allege that the feature of the second threshold being related to an agreed proportion of resources shared by the at least two operators for use by the first operator. In Peltola, there is no concept of having a common pool of resources that is shared by multiple operators. Rather, Peltola is clear that multiple operators

each have dedicated resources such as dedicated hardware and spectrum.

*Peltola, c.3, ll.40-48.*

In *Peltola*, if an operator has spare capacity, for example operator B, the operator can offer the available capacity to another operator, for example operator A, at a certain price. Instead of disappointing its customers, operator A might decide to purchase capacity from operator B. *Peltola, c.3, ll.49-67.*

As seen in Fig. 5, the operator with spare capacity allocates its own channels and/or radio resources for potential sale to other operators. The allocation of these resources is made purely by the operator without any input from other operators. Thus, there can be no agreed proportion threshold of any type. Clearly, *Peltola* does not teach or suggest the features of claim 45.

Applicants respectfully request that the rejections of claim 45 based on *Cecile, Johansson* and *Peltola* be withdrawn.

#### **F. MISCELLANEOUS**

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact Hyung Sohn (Reg. No. 44,346), to conduct an interview in an effort to expedite prosecution in connection with the present application.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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